Results Of The Crosses Between Waxy Starch And Small Granule Mutations In Search Of Double-Mutants

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No other source of starch is traded in the international markets more than that of cassava. This crop is the second most important global source for starch production (8.0 million t/year) after maize (15.5 million t/year). Key factors for cassava in starch production are its price and quality. However, there were no reported variations for starch functional properties in cassava until the discovery, in 2006, of the amylose-free (waxy) and small-granule mutations. Efforts to exploit these mutations began immediately upon their discovery. Crosses among the sources of these mutations were made and these genotypes (heterozygous for both traits) were self-pollinated or crossed to produce segregating progenies of which about 6% should combine the expression of the two recessive traits. A total of 148 plants (from 19 S_1 families) and 89 plants (from 13 "F_2" families) were analyzed and not a single individual expressing simultaneously both mutations was found. Results suggest that the two traits are closely linked or their combination is lethal. Interesting segregation for amylose content (ranging from 19 to 42%) was found among different small granule genotypes, suggesting that there may actually be two mutations segregating in the population: granule morphology and amylose content.